**AMENDED CLAIMS**

received by the International Bureau on 28 November 2005 (28.11.05)
original claim 1,2,3,7,14,16,19 & 22 have been amended.
Original claim 26 has been deleted. (7 pages)

[1] An implant assembly for treating proximal femur fractures and same side fractures of shaft of femur comprising;

a compact targeting device (41) having connecting end (59) to connect with thigh end (43) of intramedullary nail (42) by temporary connecting bolt (58), a handle part (60), block of plural proximal holes (38) and block of plural distal holes (40), where axis of said proximal holes directed towards head(1) and neck (2) of femur is making an angle of 120° to 140° with longitudinal axis of medullary canal (17) of femur to match the neck shaft angle (13) of femur to target corresponding proximal holes (37) of intramedullary nail (42) and at the same time the plane of said proximal holes is making an angle of 5° to 20° with horizontal plane passing through long axis of femur (14), intramedullary nail and said plural distal holes (40) to match the ante version angle(16) of head and neck of femur and axis of said distal locking holes are making an angle of 90° with longitudinal axis of intramedullary nail when said intramedullary nail is in position in medullary canal of femur;

a unitary intramedullary nail of short length version (54) and full length version (55) being adapted in use for insertion into the medullary canal of a femur, is cannulated in whole length ,having thigh end portion or head (43),intermediate portion or shaft (44) and knee end portion or tail (45) ,where said head is having plurality of proximal holes(37) and axis of said plural proximal holes directed towards head(1) and neck (2) of femur is making an angle of 120° to 140° with longitudinal axis of medullary canal and said nail to match neck shaft angle (13) of femur and at the same time the plane of said plural proximal holes (37) is making an angle of 5° to 20° with horizontal plane (14) passing through long axis of medullary canal of femur to match ante version angle(16) of head and neck of femur, where said shaft (44) is having plural distal holes (39) to hold distal fragment of femur in said short length version (54) and said knee end (45) is having anterior curvature, and plural distal holes in said full length version and axis of said distal holes is making an angle of 90° with longitudinal axis of

medullary canal (11) and said intramedullary nail (42) when said intramedullary nail is in position in medullary canal;

proximal sliding hip pins (46) are cannulated in whole length having head part (75), gliding smooth part (53) and holding part triflanged part (47) to hold head and neck of femur where said triflanged part is having scalloped three flat equal surfaces up to 15mm to 50 mm of span with mores taper towards leading end to get better grip and rotational stability in head (1) and neck (2) part of proximal fragment of fracture;

Buttress plate (50) preferably with barrels (51) is having upper short transverse part (82)and lower long vertical part (83) wherein said lower vertical part is having at least two central large holes (52) with at least 2mm of slit to allow continuous sliding contact with said sliding part (53) of proximal sliding hip pins(46) where shape and diameter of said central holes(52) are matching with the shape and diameter of barrels and corresponding said sliding part of said proximal hip pins wherein purpose of buttress plate with barrels is to provide buttress support to lateral cortex of lower part of greater trochanter (3) and lateral cortex of femur(22) when it is broken badly and to have lateral stable platform and uniform continuous sliding contact surface for limited guided controlled collapse of fracture gap.

[2] An implant assembly of claim 1 wherein said unitary intramedullary nail of short length version (54) is characterized having anterior curvature in said tail end (45) to match anterior curvature (18) of medullary canal (17) of femur to avoid abutting of tip (34) of said tail (45) end to anterior cortex (6) of middle part of shaft (5) of femur and prevent stress concentration leading to pointing effect (35) with thigh pain and fracture of shaft (5) of femur later on.

[3] An implant assembly of claim 1 wherein said connecting end (59) of targeting device (41) is characterized by having matching diameter with internally threaded part (68) of said intramedullary nail (42) wherein said targeting device (41) is connected by said cannulated connecting bolt (24) with said intramedullary nail and said connecting end (59) of targeting device is also short and compact to reduce the size of

incision for insertion of said intramedullary nail and does not obstruct intraoperative imaging even though it is not radiolucent.

[4] An implant assembly of claim 1 wherein said block of plurality of proximal holes (38) of targeting device (41) is characterized having axis of said proximal holes is making an angle of 120° to 140° with axis of intramedullary canal of femur to match the neck shaft angle (13) of femur and at the same time plane of said proximal holes is making an angle of 5° to 20° with horizontal plane (14) passing through longitudinal axis (11) of medullary canal (17) of femur to match ante version angle (16) of head and neck of femur and to have placement of said hip pins in centre of neck and head without rotating targeting device.

[5] An implant assembly of claim 1 wherein said block of plurality of distal holes (40) of targeting device (41) is characterized having axis of said distal holes is making an angle of 90° with longitudinal axis of intramedullary canal (11) and long axis of said intramedullary nail when said intramedullary nail (42) is in position in medullary canal (17) of femur.

[6] An implant assembly of claim 1 wherein said block of plurality of proximal holes (38) and said block of plurality of distal holes (40) of said targeting device (41) are further characterized having their placement in different plane, where plane of said proximal holes (40) is making an angle of 5° to 20° with horizontal plane passing through said distal holes (40) of targeting device.

[7] An implant assembly of claim 1 wherein said block of plurality of proximal holes (38) of targeting device (41) is characterized having distance between tip of said connecting end (59) of targeting device and said proximal holes is kept at "X" value and at the same time distance in between said proximal holes is kept at "Y" value where the values of "X" and "Y" in millimeters is kept in such a way that placement of said inferior sliding hip pin (61) happens near calcar (10) for better fixation and said superior sliding hip pin (62) gets placed avoiding superior

surface(9) of neck (2) preventing "cut through" of said sliding hip pin from neck(2) and head(1)of femur.

[8] An implant assembly of claim 1 wherein said block of plurality of distal holes (40) of targeting device (41) to be used when said short length version (54) of intramedullary nail (42) is placed in medullary canal (17) is characterized having distance between tip of said connecting end (59) of targeting device and said distal holes of targeting device is kept at "Z" value in millimeters in such a way that said distal holes of targeting device target corresponding said distal locking holes (39) of said intramedullary nail before anterior curvature (18) of femur starts to get sure distal interlocking of said nail with femur without any chance to miss the said distal holes (39) in nail.

[9] An implant assembly of claim 1 wherein said unitary intramedullary nail of short length version (54) and long length version (55) are characterized having reducing cross section area and wall thickness of said intramedullary nail gradually from said thigh end portion (43) to said intermediate portion or shaft (44) to said distal knee end portion or tail (45) to match shape of said intramedullary nail implant with shape of intramedullary canal (17) and cortical thickness of femur to avoid high hoop stress in medullary canal while inserting said intramedullary nail.

[10] An implant assembly of claim 1 wherein said unitary intramedullary nail of short length version (54) and long length version (55) are characterized having axis of said knee end (45) and said intermediate portion (44) is concentric with axis of intramedullary canal, while axis of said thigh end or head portion (43) is making an angle of 5° to 9° with axis of intramedullary canal and axis of said knee end and said intermediate portion to allow entry of said intramedullary nail from tip of greater trochanter (3).

[11] An implant assembly of claim 1 wherein said plural proximal holes (37) of intramedullary nail (42) are characterized having axis of said proximal holes are making an angle of 120° to 140° with axis of intramedullary canal (17) of femur

to match the neck shaft angle (13) of femur and at the same time plane of said proximal holes is making an angle of 5° to 20° with horizontal plane (14) passing through longitudinal axis of medullary canal (17) of femur to match ante version angle (16) of head (1) and neck (2) of femur and to have placement of said hip pins in centre of neck and head.

[12] An implant assembly of claim 1 wherein said plural distal holes (39) of intramedullary nail (42) are characterized having axis of said distal holes is making an angle of 90° with longitudinal axis (11) of intramedullary canal and long axis of said intramedullary nail when said intramedullary nail is in position in medullary canal (17) of femur.

[13] An implant assembly of claim 1 wherein said plural proximal holes (37) and said plural distal holes (39) of said intramedullary nail are further characterized having their placement in different plane, where plane of direction of said proximal holes in said intramedullary nail is making an angle of 5° to 20° with horizontal plane passing through direction of said distal holes in said intramedullary nail.

[14] An implant assembly of claim 1 wherein said plural proximal holes (37) of intramedullary nail (42) is characterized having distance between tip of said connecting end (68) of intramedullary nail and said proximal holes is kept at "X1" value and at the same time distance in between said proximal holes is kept at "Y1" value where the values of "X1" and "Y1" in millimeters are kept in such a way that placement of said inferior sliding hip pin (61) happens near calcar (10) for better fixation and said superior sliding hip (62) pin gets placed avoiding superior surface (9) of neck preventing "cut through" of said superior sliding hip pin from neck (2) and head (1) of femur.

[15] An implant assembly of claim 1 wherein said plural distal holes (39) of said short length version (54) of intramedullary nail (42) is characterized having distance between tip of said connecting end (68) of short length version intramedullary nail and said distal holes is kept at "Z1" value in millimeters in such a way that said distal holes of targeting device (41) target corresponding said distal

locking holes of said short length version intramedullary nail before anterior curvature (18) of femur starts to get sure distal interlocking of said nail with femur without any chance to miss the said distal holes in said nail.

[16] An implant assembly of claim 1 wherein said plural proximal holes (38) of intramedullary nail (42) is characterized having preferably other than round shape like said "hexagonal (69) or said "key hole (70)"and inner diameter matching with shape and outer diameter of said sliding part (53) of proximal sliding hip pins (46) to have continuous sliding contact for said sliding proximal hip pins and to have better rotation stability in between said proximal holes (38) acting as barrels and said proximal hip pins (46) for controlled limited collapse of fracture gap.

[17] An implant assembly of claim 1 wherein said intramedullary nail (42) is characterized having relatively smaller diameter of said thigh end (43)

[18] An implant assembly of claim 1 wherein said triflanged part (47) of proximal sliding hip pin (46) is characterized having scalloped three flat equal surfaces up to 15 mm to 50 mm of span with mores taper towards leading end.

[19] An implant assembly of claim 1 wherein said proximal sliding hip pin (46) is characterized having said smooth sliding part (53) having outer shape preferably other than round shape like "hexagonal (69) or "key (70)" and outer diameter matching with shape and diameter of said proximal holes (37) in intramedullary nail (42) and said barrels (51) and said central large holes (52) of buttress plate (50) to have continuous uniform sliding contact for said sliding proximal hip pins

[20] An implant assembly of claim 1 and claim 18 wherein said triflanged part (47) of proximal sliding hip pin is characterized is having scalloped three flat equal surfaces.

[21] An implant assembly of claim1 and claim18 wherein said triflanged part (47) of proximal sliding hip pin is characterized having said multiple holes (48) of at least 2mm diameter connecting said central cannulation (78) of said

proximal hip pin to allow injection of liquid cement or other augmentation material (49) to augment the hold of said proximal hip pin (46) in head (1) and neck (2) of femur.

[22] An implant assembly of claim 1 wherein said buttress plate (50) preferably with barrels (51) is of at least 2 mm thickness, contour able to shape of lower part of greater trochanter (3) and upper part of lateral cortex of femur(22), is characterized having said upper transverse short part (82) having at least two said holes and said vertical long part (83) having at least two said large central holes (52) of matching in shape and diameter of said sliding part (53) of proximal hip pin and said barrels (51) where said large central holes are having said slit (86)of at least 2 millimeter and said vertical long part having at least two small holes in lower part.

[23] An implant assembly of claim 1 wherein said variable length cannulated end cap (79) is characterized having said threaded part (80) having outer diameter matching inner diameter of said threaded end (68) of intramedullary nail to seal said nail and having said head part (81) matching outer diameter of said head end (43) of intramedullary nail (42) and said head part is having variable length to enhance the total length of said nail when required.

[24] An implant assembly of claim 1 wherein said intramedullary nail (42) and said proximal hip pins (46) are characterized having central cannulation .

[25] An implant assembly of claim 1 wherein said thigh end part or head (43) of said intramedullary nail (42), said proximal holes (37) in intramedullary nail and said proximal hip pins (46) are characterized having smaller diameter.

[26] An implant assembly of claim 1, wherein said short length version(54) intramedullary nail and long length version (55) intramedullary nail and said proximal sliding hip pins(46); said barrels (51); said butress plate(50), said interlocking screws (56) are made of stainless steel or titanium or other bio compatible material.